SOUTHEASTERN
REGIONAL
BIOMASS ENERGY
PROGRAM

SERBEP Update

JANUARY 1996

A Publication for the General Biomass Community

The Southeastern Regional Biomass Energy Program is one of five regional biomass energy programs. It is administered for the U.S. Department of Energy Office of National Programs by the Tennessee Valley Authority's Environmental Research Center in Muscle Shoals, Alabama. The 13-state region includes Florida, Kentucky, Mississippi, Georgia, North Carolina, South Carolina, Virginia, West Virginia Missouri, Tennessee, Louisiana, Arkansas, and Alabama.

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BIOSTIRLING™ PROGRESS

Stirling Thermal Motors (STM), Inc., Ann Arbor, Michigan, has recently received a DOE contract to demonstrate the feasibility of linking a Stirling engine to a biomass-fueled, two-stage combustor (gasifier). Stirling engines are external combustion engines (see October 1993 *SERBEP Update*); their major advantage is their ability to use virtually any type of fuel.

STM has been working for several years to develop a Stirling engine for automotive applications. The company also supplies an identical Stirling engine for the Dish/Stirling System in DOE's Utility Scale Thermal Power program, now entering its second year.

For the BioStirling™ project, STM is working with Chiptec of South Burlington, Vermont, to develop a close-coupled gasifier/Stirling engine system. Chiptec has successfully employed several of its gasification units in schools and other facilities in the New England area. The Chiptec systems are automated and typically use wood chips for fuel.

Initially STM will employ its STM4-120 BioStirling™ Power Conversion System to produce electricity in the 20 kW_e range. Power systems with up to 60 kW_e are planned. When commercialized, STM envisions wide use of the BioStirling™ system for small-scale power generation for remote or rural applications in both domestic and overseas markets.

The STM4-120 produces 25 kW_e at 1800 rpm and 50 kW_e at 3600 rpm. The engine has 4 cylinders and uses either helium or hydrogen as the working fluid. Weight of the engine and generator is approximately 1,600 pounds.

For the proof-of-concept test of the STM4-120 system, a 500,000 Btu/hr Chiptec gasifier will be used. Gas from the gasifier will be used to fire a special burner mounted on the head of the Stirling engine. Waste heat from the burner will be used to preheat combustion air and boost overall efficiency. Approximately 1.7 kW of thermal energy will be produced for every 1 kW of electricity produced. Testing is anticipated to be completed in approximately six months.

For more information contact Lennart Johansson or Benjamin Ziph, Stirling Thermal Motors, 275 Metty Drive, Ann Arbor, Michigan 48103, phone (313) 995-1755, fax (313) 995-0610.

Please let us know of others who would like to receive this update publication on a monthly basis. Also, let us know if you are currently receiving this information and wish your name removed from our mailing list.

NWPCA Financial Analysis—The National Wooden Pallet and Container Association (NWPCA) has released a comprehensive financial analysis of the pallet industry. The *1994 Pallet Industry Financial Ratio Survey* consists of 63 pages of recent fiscal information detailing the domestic pallet industry's performance and growth. The pallet industry, with sales in the billions, produces and recycles hundreds of millions of pallets annually, yet the industry has historically been lumped in with unrelated businesses in those commercially produced financial studies which have been conducted previously. This practice denied businessmen, industry analysts, and potential investors important insights into an industry that has grown consistently over the past 50 years. NWPCA's report corrects these oversights. It gives the lending institution, investment banker, and business strategist a concise source of targeted fiscal data broken out by business type, product mix, national region, association affiliation, and asset class. NWPCA members may purchase a copy for $100; nonmembers for $200. Contact Sam Baker, NWPCA's Director of Technical Service at (703) 527-7667, ext. 206, or fax (703) 527-7717.

ALFALFA TO ELECTRICITY

A project in west central Minnesota is showing how farmers, utilities, and communities can work together to provide economic development for rural areas and sustainable, clean energy. The project centers on alfalfa, a well-known and widely grown forage crop whose deep roots and perennial cover provides excellent soil conservation advantages. In addition, alfalfa fixes nitrogen from the air, thereby increasing soil nitrogen and decreasing the need for manufactured nitrogen fertilizer.

The project started as a feasibility study jointly conducted by Northern States Power Company, the University of Minnesota Center for Alternative Plant and Animal Products, the Institute of Gas Technology, Tampella Power Corporation, and Westinghouse Electric Corporation. The participants and DOE's National Renewable Energy Laboratory and the Electric Power Research Institute are providing funding and technical support for the project.

The concept for the project is shown in Figure 1. Alfalfa is harvested and baled into large round bales using conventional farm equipment. Initially, 40% of the crop will be taken directly from the field to the processing plant and 60% will be stored to allow year-round processing. At the processing plant, the bales are split and a drum dryer is used to dry the alfalfa before a hammermill separator breaks the alfalfa into two flow streams: higher-value, protein-rich leaves and stems. The leaves are pelletized for sale as livestock feed.

The alfalfa stems are conveyed to a power plant and heated to 1650°F to make a low-Btu gas. The gas is then used to fuel an integrated gasification combined cycle (IGCC) power plant to produce electricity. A combined cycle plant produces electricity using two separate turbine/generators. In the first cycle, the low-Btu gas is used to fuel a gas turbine. In the second cycle, waste heat from the gas turbine is used to generate steam in a heat recovery steam generator. This steam is used to power a turbine in the second cycle and also generate electricity.

The biomass gas heat input is 614 million Btu per hour (HHV), which includes the sensible heat of the hot fuel gas. A total of 79.4 MW is produced in the IGCC plant: 50.1 MW from the combustion turbine and 29.3 MW from the steam turbine. The generating system uses 4.3 MW resulting in a net power of 75.1 MW. The net fuel-to-electrical efficiency is projected to be 38.3% based on a heat rate of 8,910 Btu/kWh. Total system efficiency for the production of leaf meal and electricity from alfalfa is 1:3. (For each unit of non-solar energy input, the system produces 3 units of energy output.)

Minnesota currently produces over 6.9 million tons of alfalfa hay per year—fourth largest in the United States. The proposed alfalfa production area for this project is within a 50-mile radius of Granite Falls, Minnesota. (Granite Falls is located straight west of Minneapolis and roughly 50 miles from the state border.) Over 0.34 million acres of alfalfa are currently produced in these counties, with corn and soybeans produced on another 5.4 million acres. The average size farm is 580 acres. An average break-even price for alfalfa in the project growing area is calculated to be $67.44 per ton.

Based on focus group interviews of farmers, potential producers would be experienced farmers already in the project area. These farmers would be motivated to start producing or to increase their production of alfalfa to increase their income, reduce risk through diversification, and to enhance environmental quality on their farms.

The proposed cropping plan involves planting alfalfa, corn, and soybean crops in a seven-year cycle. Alfalfa would be planted in the spring of the first year, and one cutting taken near the end of August that year. Alfalfa production would continue for years two, three, and four with three cuttings per year being harvested. Following the alfalfa, corn would be grown for two years, followed by one year of soybeans. The addition of alfalfa provides plant diver-

sity in the cropping rotation, builds up nitrogen to the soil, and reduces soil erosion.

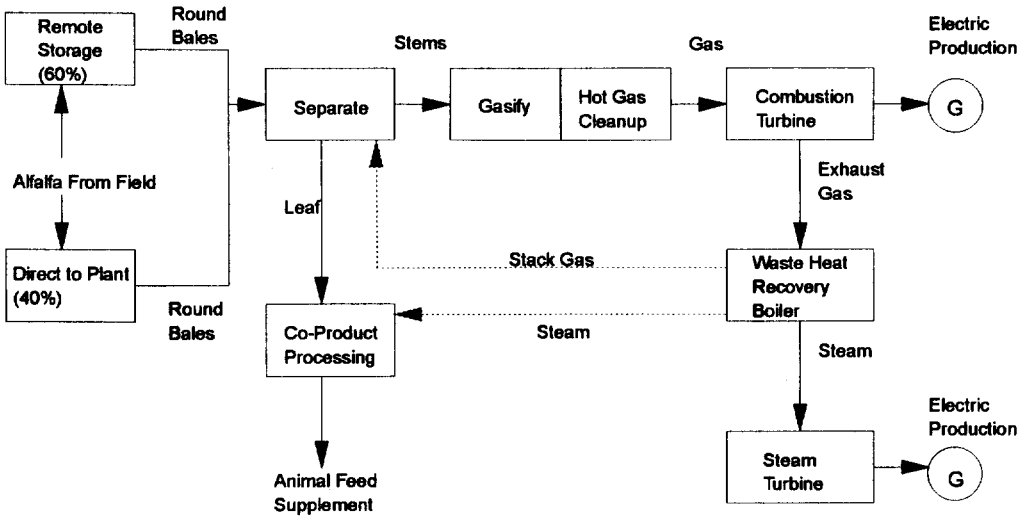
A joint venture between a farmer-owned cooperative and an electric utility has been proposed as an efficient business structure for successful cost-shared demonstration of biomass energy production. As a result of grower meetings in the Granite Falls area, a group of interested farmers formed the Minnesota Valley Alfalfa Producers Cooperative in late 1994. Interest in the cooperative has been high—$20 million was raised in a three-month period to set up the cooperative.

Revenues come from the sale of electricity (43%) and from the sale of alfalfa meal (57%). The cost of electricity generated from this system is 8.40 cents per kWhr without government cost-sharing. Government cost-sharing of one-third the initial cost would reduce the cost of electricity to 6.52 cents per kWhr. Government cost-sharing of one-half the initial cost would reduce the cost of electricity to 5.60 cents per kWhr. The target rate of return on initial investment is 11.5% which is considered acceptable where a portion of revenue is from a stable power sales contract and a portion from a variable market for the leaf meal.

The business venture takes title and responsibility for the alfalfa at time of harvest and manages the storage, transportation, shrinkage, and associated cash flow for these operations. The business venture takes management and financial responsibility for processing, marketing, and sale of the leaf meal product. In effect, the responsibility for the risk of feedstock storage, transportation, processing, and leaf meal sales is transferred from the individual farmer to the collaborative effort of the cooperative.

The basis for this article is a paper in the proceedings of the Second Biomass Conference of the Americas, held recently in Portland, Oregon. For additional information on this project contact Dr. Max DeLong, Northern States Power Company, 414 Nicollet Mall (RS-7), Minneapolis, Minnesota 55401, phone (612) 330-5850.

Figure 1. Power and Co-Product Plant Concept



Wood Recycling Reprint Available—An article entitled "Wood Recycling at Municipal Centers" appeared in the October 1995 issue of *BioCycle* magazine. The article describes two Alabama cities involved in recycling woody materials. The first comprehensive recycling program in Alabama to target yard trimmings, brush, and wood, got started in the City of Decatur in 1992. That year, more than 12,000 tons of materials were collected, processed and marketed, generating revenues of over $33,000. The City of Anniston in eastern Alabama also developed a successful wood recycling program which called for a wood waste processing center to be operated at an existing commercial sand and gravel operation. Open six days per week, the site accepts all wood and yard trimmings collected by the city, as well as additional material dropped off by individual residents and businesses. For more details, request a reprint of the article from SERBEP.

SUN DAY 1996—The SUN DAY Campaign announces that SUN DAY 1996 is scheduled to be observed on Sunday, April 21, 1996, through locally-initiated activities in communities around the country. It will be the fifth annual national celebration of renewable energy and energy-efficient technologies. Objectives are to demonstrate the breadth of public support for sustainable energy technologies; educate the general public and others about the status, potential, and benefits of renewable energy; showcase the programs and technologies being sponsored by various organizations; and encourage new public and private initiatives to expand the use of renewable energy and energy-efficient technologies. SUN DAY is a decentralized, grassroots-up program, loosely coordinated by the SUN DAY Campaign in which participating businesses, citizen organizations, government agencies, and others design their own programs. A number of free-of-charge materials are available upon request from the SUN DAY Campaign for a stamped ($0.32/item), self-addressed, legal-size envelope. Contact SUN DAY, 315 Circle Ave, #2, Takoma Park, MD 20912-4836, (301) 270-2258, fax (301) 891-2866.

FIRST RENEWABLE ENERGY PRODUCTION INCENTIVES PAYMENTS MADE

The Comprehensive National Energy Act of 1992 created an income tax credit under Internal Revenue Code (IRC) §45 for electricity produced and sold from "closed-loop" biomass. Closed-loop biomass is defined as any organic matter derived from a plant which is planted for the exclusive purpose of being used to produce electricity. It is *not* available for electricity produced from forest products or agricultural wastes, or from standing timber.

In addition, this same act created a "Renewable Energy Production Incentive" (REPI) for electricity generated by nonprofit organizations. Unlike the tax incentive available for for-profit companies, *the REPI payment is available for all forms of biomass except for municipal solid waste*. The incentive payment is for up to 1.5 cents per kilowatt hour, adjusted annually for inflation from the base year of 1993. Eligible nonprofit organizations include states, political subdivisions (e.g., agencies, authorities, etc.), any corporation or association which is wholly owned (directly or indirectly) by states or political subdivisions, and to nonprofit electrical cooperatives. To receive payments, eligible organizations must apply to the U.S. Department of Energy (DOE).

Even though the Comprehensive National Energy Act authorized such payments, the money must still be appropriated by Congress to be available for payments. Funding for fiscal year 1994 REPI payments was appropriated in fiscal year 1995 and, after the mid-year budget recession, amounted to $2.2 million with $0.7 million paid out to recipients. No new funds were appropriated in fiscal year 1996 for REPI payments but Congress directed DOE to pay out $3 million "from available funds." Thus, including the $2.2 million carryover, a total of $5.2 million will be available in 1996 for fiscal year 1995 payments.

DOE recently announced that four state-owned and three city-owned facilities received a total of $693,120 in incentive payments for electricity production in fiscal year 1994. Of the seven facilities, four use methane from landfills for the production of electricity.

For additional information on REPI and other tax credits and incentives, order the *National Directory of Federal and State Biomass Tax Incentives and Subsidies* available at no cost from SERBEP.

REPI PROGRAM RECIPIENTS

Applicant	Facility	Source	Payment
Sacramento Municipal Utility District (SMUD)	Solano Wind Project	Wind	$93,038
Sacramento Municipal Utility District (SMUD)	Hedge Substation Photovoltaic	Solar	$4,530
Sacramento Municipal Utility District (SMUD)	Solar Pioneers Photovoltaic	Solar	$3,157
City of Glendale, California	Grayson Power Plant	Landfill Methane	$176,260
Lycoming County, Pennsylvania	Lycoming County Landfill Gas Co-Generation System	Landfill Methane	$100,793
Emerald Peoples' Utility District, Oregon	Lane County's Short Mountain Landfill	Landfill Methane	$167,290
University of California, Los Angeles (UCLA)	UCLA Energy Systems Facility	Landfill Methane	$148,052

NEW ECONOMIC IMPACT STUDY FOR THE SOUTHEAST

A new economic impact study for the southeast shows that wood energy use accounts for almost 7% of the residential, commercial, and industrial energy use in the region, or approximately 5% of the region's total. In the southeast the industrial wood energy sector, including black liquor use, generates 1.7 jobs and $50,000 of income per 1000 tons of wood used. The total net income impact for the region is approximately $3 billion and the net employment impact is approximately 104,000 jobs. The study was performed for SERBEP by Resource Systems Group, Incorporated, of White River Junction, Vermont.

Wood use in the southeast was approximately 106,000,000 tons in 1992. This was made up of 44,000,000 tons of industrial fuel wood, 42,000,000 tons of industrial black liquor, and 20,000,000 tons (8,990,000 cords) used in the residential sector. (Black liquor is a residue from paper manufacturing that contains significant amounts of wood residues.)

The use of wood energy displaces natural gas, propane, oil, coal, and electricity. This causes a reduction in income and employment in those sectors. The income and job displacements vary considerably from state to state, being greater in states with large natural gas and petroleum industries. The other displacement effect that occurs is in waste wood disposal, where jobs and income are displaced as wood waste is no longer landfilled. The total income lost in the region due to energy and landfill displacement is estimated at $1,566,000,000 per year. The equivalent job displacements in the region are 22,200.

Over two-thirds of wood energy use economic impact is generated in the industrial sector. The industrial sector is also the larger job generator producing over 76,000 jobs while the residential sector produces 28,000 jobs. However, the residential sector generates more employment and income per ton of wood used. When the two sectors are compared, on a basis of the impacts per 1000 tons of wood burned, the residential sector generates 1.55 jobs and $50,934 of income per 1000 tons compared to 1.37 jobs and $38,463 of income in the industrial sector.

The wood energy industry as a whole is estimated to generate $476,000,000 in federal taxes in the region and $166,000,000 in state and local taxes. The estimate of federal taxes does not include taxes paid on activity outside the region. The federal tax figure is therefore an underestimate of the total federal taxes.

The approach used for this study is known as the hybrid assessment method. It combines the direct input of specific data on wood energy use, costs, salaries, and labor requirements, with input/output model derived multipliers, to assess the indirect and induced employment and income associated with wood energy.

The IMPLAN input/output model is used to determine the direct, as well as indirect, effects of most of the displaced activities, because there are large economic sectors, such as oil or coal, that are well represented in the IMPLAN model. However, the IMPLAN model does not do a good job of representing the direct residential wood energy sector.

More details on the study methodology are available in the reports, which may be obtained at no cost from SERBEP. The reports also provide detailed tables and state-by-state breakdowns for wood energy use and economic impacts.

To order *Economic Impacts of Industrial Wood Energy Use in the Southeast Region*, Vol. I-IV, 1991 (Revised 1994); *The Economic Impact of Residential Wood Energy in the Southeastern States*, 1994; or the combined report *The Economic Impact of Industrial and Residential Wood Energy in the Southeastern States*, 1994; contact SERBEP.

TIRES AS FUEL

Stockpiles of scrap tires in the U.S. are estimated at 850 million to 3 billion tires and growing at the rate of 240 to 270 million per year. Forty-seven states have some form of scrap tire management regulations and

Renewable Resource Data Center (RReDC)—The National Renewable Energy Laboratory Analytic Studies Division presents the Renewable Resource Data Center, which provides information on several types of renewable energy resources in the United States, in the form of publications, data, and maps. An extensive dictionary of renewable energy related terms is also provided. The News section announces exciting new products on the RReDC. The RReDC is supported by the U.S. Department of Energy's Resource Assessment Program and managed by the Photovoltaics Technology Division of the Office of Energy Efficienty and Renewable Energy. Questions and comments should be sent to rredc@nrel.gov.

Renewable Energy South Asia '96—The 2nd International Annual *Renewable Energy South Asia '96* Conference will be held February 12-14, 1996, at the Taj Palace Inter-Continental, New Delhi, India. This 2nd International Conference will focus on marketing and financing tools that produce profitable results. The conferencepProgram will feature practical experience of national and private projects from developed and developing countries and how they can be utilized in the South Asian region. The conference will consist of three days which will have sessions covering marketing strategies, financing mechanisms, business opportunities, joint venture set-up, ownership opportunities, collaborative partnerships, policies, plans and incentives, renewable project evaluations, application lessons learned, Asian country working groups, and user feedback. For more information contact Cassy Kurtzman, Alternative Development Asia Limited, 5F, 3 Wood Road, Wanchai, Hong Kong, tel +852-2574-9133, fax +852-574-1997, email mcseym@hk.super.net.

thirty-four have funding mechanisms in the form of grants, loans, loan guarantees, tax credits, rebates, processor incentives, and reimbursements for end-users of scrap tire products. Some states also have fees ranging from 25 cents to 2 dollars on tire purchases, disposal, or title transfer. Still, few are managing the continuing creation of scrap tires.

The problem, according to Sholeh Glaz in *Waste Age* was an early emphasis on research to develop high-value end uses and a mind-set that the tires are a resource too valuable to burn. This effort has produced such uses as barrier walls, building blocks, erosion control, landfill liners, marine reefs, retaining walls, drainage systems, landscaping, bumpers, mats and runners, playground equipment, roofing, paving, and soil stabilization and amendment. Other processes such as pyrolysis produce carbon black, gas, oil, and scrap metal. Still, these uses consume only a few percent of the scrap tires stockpiled and being produced each year.

The most common tire is a steel belted passenger car tire weighing about 20 pounds. Tire processing using either stationary or mobile equipment involves shredding to produce chunks about 6 inches or less in size, with 2 inches a favorite size. This increases the bulk density from about 0.11 lb/ft^3 to 0.44 lb/ft^3 and is sometimes used for operators of tire monofills—landfills dedicated to tires. In this form they can also be used for fuel and some civil engineering uses, either as is with the wire and fiber included or processed to recover the wire and produce TDF—tire-derived fuel. Direct costs for shredding passenger car tires is about 18 to 35 cents per tire depending on the shredded size and the volume processed. For a 20-pound passenger tire this results in a cost of $18 to $35 per ton of shredded tire or $0.69 to $1.35 per million Btus.

Glaz estimates, however, that all of these high-end and civil engineering uses of scrap tires can handle no more than 55 percent of the total, leaving fuel use or landfilling as the only recourse.

Rubber as a fuel isn't as bad as it might seem if you base your deduction on casual observations of burning rubber. Compared with coal it actually has several advantages. Shredded tires have a heating value of 12,000-14,000 Btu/lb and an ash content of 3-12 percent depending on the amount of wire and fiber remaining, and a sulfur content of 1-1.5 percent. Typical utility eastern bituminous coal has a heating value of about 12,000, an ash content of 14 percent, and a sulfur content of about 3 percent. Rubber is lower in toxic metals than coal. Cofiring 20 percent rubber/80 percent coal at a Monsanto Chemical plant in Illinois significantly reduced emissions of particulates, heavy metals, and organics. The natural rubber content of the tire might also be considered a non-fossil carbon dioxide source.

TDF now being used varies widely in price, ranging from 20-45 dollars/ton and averaging about 28 dollars/ton. In many cases subsidies and economic incentives of various sorts are involved. The present cost lies in the range of utility and industrial coal costs; hence, there is little incentive to switch to co-firing based on cost alone.

Cement kilns are the primary users of scrap tires for fuel according to a listing in the *Scrap Tire Users Directory* published by the Recycling Research Institute. Of 50 plants in the U.S. that burn or plan to burn TDF, 23 are cement plants, most of which are whole tires. The quantity of TDF ranges from 5-45 percent of the total Btu input. The remaining plants are utilities, manufacturing plants, and waste-to-energy facilities that primarily use shredded tires for 5-15 percent of the Btu input. CMS Energy Corporation operates two power plants that consume 15 million tires/year. Exeter Energy L.P. and Recycled Energy operate plants whose sole or primary fuel is whole or chipped tires, consuming 22 million tires/year.

Using rough estimates of about 100 million tires for the total number burned, this equates to 4.5 million barrels of oil equivalent. If 200 million tires per year could be used for fuel the barrels of oil equivalent would be about 9 million, roughly equal to one day's consumption of imported oil.

Calendar of Events

February 5-7, 1996
Nebraska City, Nebraska
Trees and Utilities National Conference
The National Arbor Day Foundation,
P.O. Box 81415,
Lincoln, NE 68501-1415
tel (402) 474-5655
fax (402) 474-0820

February 12-14, 1996 (new dates)
New Delhi, India
2nd International Annual Renewable Energy, South Asia '96
Cassy Kurtzman
fax +852 2574 1997

March 22-25, 1996
Charlotte, North Carolina
Hearth & Home Expo '96
Hearth Products Association, 1555 Wilson Blvd., Suite 300,
Arlington, VA 22209
tel (703) 875-8711
fax (703) 812-8875

March 25-28, 1996
Salt Lake City, Utah
40th Annual APPA Engineering &Operations Workshop
Joy Arthurs, APPA, 2301 M St., NW,
Washington, DC 20037
tel (202) 467-2907

April 13-18, 1996
Asheville, North Carolina
Solar 96, National Solar Energy Conference
American Solar Energy Society, 2400 Central Avenue, Suite G-1,
Boulder, CO 80301
tel (303) 443-3130
fax (303) 443-3212

April 14-17, 1996
Sun City, South Africa
11th International Symposium on Alcohol Fuels
Professor R. K. Dutkiewicz, Energy Research Institute, University of Cape Town, P.O. Box 207, Cape Town,
7800, South Africa
fax (27) (021) 705-6266

April 28-May 3, 1996
Snowbird, Utah
Biomass Usage for Utility and Industrial Power
Engineering Foundation, 345 East 47th St., New York, NY 10017
tel (212) 705-7836
fax (212) 705-7441
E-mail engfnd@aol.com

May 5-9, 1996
Gatlinburg, Tennessee
Eighteenth Symposium on Biotechnology for Fuels and Chemicals
Brian H. Davison, Oak Ridge National Laboratory, PO Box 2008, Bldg. 4505,
Oak Ridge, TN 37831-6226
tel (423) 576-8522
fax (423) 574-6442

May 20-24, 1996
Banff, Canada
Developments in Thermochemical Biomass Conversion
Dr. Tony Bridgwater, Energy Research Group, Aston University,
Birmingham B47ET, United Kingdom
tel: +44 121 359 3611 ext. 4647
fax: +44 121 359 4094

June 4-6, 1996
Corn Utilization Conference VI
St. Louis, Missouri
Technical Coordinator: Dr. Eugene Iannotti, Univ. of Missouri @ Columbia,
(314) 882-7510
NCGA Office Contact: Ann Beirne,
(314) 275-9915

June 24-27, 1996
Copenhagen, Denmark
9th European Bioenergy Conference
DIS Congress Service Copenhagen A/S, Herlev Ringvej 2C, DK-2730,
Herlev, Denmark
fax +45 - 4492 5050

July 14-18, 1996
San Diego, California
Fifth World Congress of Chemical Engineering
AIChExpress Service Center
345 East 47th St.
New York, NY 10017-2395
tel (212) 705-7373
fax (212) 705-8400

September 1996
Jakarta, Indonesia
3rd Annual Renewable Energy, Asia Pacific '96
Cassy Kurtzman
fax +852 2574 1997

September 15-17, 1996
Nashville, Tennessee
ASAE Liquid Fuel and Industrial Products From Renewable Products
Susan Buntjer, ASAE, 2950 Niles Rd., St. Joseph, MI 49085-9659
tel (616) 428-6327
fax (616) 429-3852
e-mail buntjer@asae.org

September 15-19, 1996
Nashville, Tennessee
Bioenergy '96--The Seventh National Bioenergy Conference
Phillip Badger, TVA Southeastern Regional Biomass Energy Program,
Muscle Shoals, AL 35662-1010
tel (205) 386-2925
fax (205) 386-2963

SERBEP Update
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Just a reminder—Each month we receive returned newsletters with no forwarding address available. We are forced to remove these names from our mailing list. If you have moved and wish to keep receiving the *SERBEP Update*, please be sure to send us your new address.

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BIOENERGY '96--The Seventh National Bioenergy Conference

Partnerships to Develop and Apply Biomass Technologies

(Hosted by the Southeastern Regional Biomass Energy Program
Conducted jointly with the ASAE Third Liquid Fuel Conference)

September 15-19, 1996, The Opryland Hotel, Nashville, Tennessee

For more information contact: Southeastern Regional Biomass Energy Program
Tennessee Valley Authority, CEB 3A, P.O. Box 1010, Muscle Shoals, AL 35662-1010
Technical Information: Phillip Badger, 205-386-3086, fax (205) 386-2963
Conference Logistics: Bonnie Watkins, 205-386-2925, fax (205) 386-2963
Trade Show Information: William Miller, (919) 927-1770, fax same

SERBEP REQUEST FOR PREPROPOSALS

SERBEP's recently issued request for preproposals (RFP) asks for demonstration type projects which are bioenergy related and innovative, with a requirement for overall minimum cost-sharing of at least one-to-one from nonfederal sources. The closing date for the SERBEP RFP is 5 p.m. CST, Wednesday, January 31, 1996. If you have not yet received a copy of the RFP and would like to apply, please contact the SERBEP office immediately.